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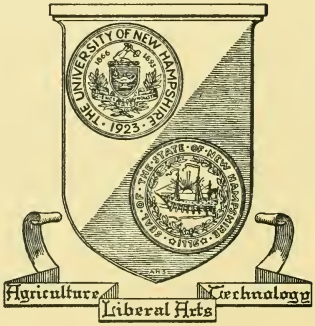

The University
of
New Hampshire

BULLETIN 391 SEPTEMBER, 1951

THE UNIVERSITY OF NEW HAMPSHIRE
AGRICULTURAL EXPERIMENT STATION
Department of Agricultural and Biological Chemistry

Inspection of Commercial Fertilizers

Made for the
STATE DEPARTMENT OF AGRICULTURE

H. A. DAVIS, M. A. BRUCE and E. E. EASTMAN

THE UNIVERSITY OF NEW HAMPSHIRE
DURHAM, N. H.

INSPECTION OF COMMERCIAL FERTILIZERS

Made for the

State Department of Agriculture

The inspection of commercial fertilizers reported in this bulletin was made under the direction of the Honorable Perley I. Fitts, Commissioner of Agriculture. Mr. George H. Laramie, Fertilizer Control Supervisor, and Mr. Harold W. Ayer, Inspector, collected samples of 114 brands of mixed fertilizer and fertilizer materials which were offered for sale by dealers or had been delivered to consumers during the year ending June, 1951. The general character of the brands sampled is shown by the following classification:

Complete fertilizer	68
Phosphoric acid and potash	10
Superphosphate	9
Nitrate of soda	2
Ammonium nitrate	2
Ammonium sulphate	1
Muriate of potash	5
Ground bone	6
Natural manures	8
Tankage	1
Urea	1
Cyanamide	1

THE FERTILIZER LAW

The chief purpose of the official inspection required by the fertilizer law is to protect the consumer against the misbranded products which doubtless would soon appear on the market if the sale of the fertilizer was not under state regulation. The purchaser of fertilizer or fertilizer materials should acquaint himself with the full text of the law. He should not accept from the dealer any bag of fertilizer which is not tagged and guaranteed in compliance with the law. If he does so, it is at his own risk.

The law governing the guarantees and labeling of commercial fertilizers or fertilizer materials follows:

"Every lot or parcel of commercial fertilizer or fertilizer material sold or offered or exposed for sale within this state shall be accompanied by a plainly printed statement, clearly and truly certifying the number of net pounds of fertilizer in the package; the name, brand or trademark under which the fertilizer is sold; the name and address of the manufacturer or importer; the location of the factory; and a chemical analysis stating the minimum percentage of nitrogen, of available phosphoric acid and of water-soluble potash expressed in whole numbers.

"No fertilizer or fertilizer material containing the three essential fertilizing elements, nitrogen, phosphoric acid and potash may be sold or offered for sale if the total minimum plant food nutrients contained therein is less than fourteen per cent by weight, provided however that natural animal and bird manures shall be excepted from the provisions of this section."

Copies of the full text of the law may be obtained from the Fertilizer Control Supervisor, State House, Concord, N. H. Inquiries concerning the law

and all matters relative to the registration of brands should be addressed to his office.

The value of a fertilizer depends mainly upon its content of available plant food, particularly nitrogen, phosphoric acid, and potash. To correct certain soil conditions, other plant nutrients are included in fertilizers for specific crops. Magnesium and boron are two so-called minor elements or plant foods furnished by some brands of fertilizers for specific cases. Whether or not a fertilizer contains the guaranteed amount of plant food can be determined only by a chemical analysis. For this reason it is considered necessary that each brand of fertilizer offered for sale be officially sampled and analyzed each year. When failure to meet the guarantee is proved by chemical analysis, the prosecution or seizure provisions of the law may be invoked. The purchaser's refusal to buy a fertilizer which does not conform to the law will not only assist in the enforcement of the law but will at the same time insure him the protection of the law.

USE OF COMMERCIAL FERTILIZERS

It is not within the scope of this bulletin to make recommendations regarding the use of commercial fertilizers. The Department of Agronomy and the Department of Agricultural and Biological Chemistry of the University of New Hampshire Agricultural Experiment Station test soils and conduct experimental work with various fertilizer materials on hay and crop land. The Department of Horticulture investigates fertilizer treatments for fruits and vegetables. Much of this work has been published, and is available for free distribution to residents of New Hampshire. Address your request to Mail Service, University of New Hampshire, Durham, New Hampshire.

Sta. Cir.	58	Fertilizer Needs of Alfalfa on New Hampshire Soils. 12 pp.
Sta. Cir.	59	Effect of Soil Moisture and Fertilizer Placement on Vitality of the Potato Seed Piece. 11 pp.
Sta. Cir.	61	Fertility Needs of Dairy Farm Crops in the Connecticut Valley. 12 pp.
Sta. Cir.	63	Fertilizers for Sweet Corn. 8 pp.
Sta. Cir.	74	The Response of Clover and Total Forage to Top-Dressing Fertilizers. 12 pp.
Sta. Bull.	324	Experiment with Potatoes. 38 pp.
Sta. Bull.	362	Purchasing Fertilizers in New Hampshire. 31 pp.
Ext. Cir.	173	Grape Growing in New Hampshire. 11 pp.
Ext. Cir.	210	Purchasing Lime and Fertilizer. 12 pp.
Ext. Cir.	212	Cabbage. 4 pp.
Ext. Cir.	266	Root Crops. 20 pp.
Ext. Cir.	273	The Home Vegetable Garden. 20 pp.
Ext. Cir.	275	Culture of Low-Bush Blueberries. 16 pp.
Ext. Cir.	287	Forage Production and Grain Saving. 8 pp.
Ext. Cir.	289	Cane Fruit Culture. 8 pp.
Ext. Cir.	299	Tomatoes for New Hampshire. 20 pp.
Ext. Bull.	100	Growing Apples in New Hampshire. 32 pp.

While the word fertilizer does not appear in all of the above titles, no publication is included which does not discuss the use of fertilizer.

SUGGESTED FERTILIZERS FOR NEW HAMPSHIRE

The following table was developed by the members of the Department of Agronomy and is included in this bulletin with their permission.

Crop	Medium Analysis	Lbs. per Acre	High Analysis	Lbs. per Acre
Grass Seedings[4]	5-10-10	600- 800	8-16-16	400-500
	*4-12-16	400- 500		
Top-Dressing Legumes	0-14-14	600- 800	0-20-20	400-600
Top-Dressing Legumes and Grasses	5-10-10	700- 800	8-16-16	400-500
Top-Dressing Grasses	7- 7- 7	600- 800	10-10-10	400-600
Corn for Grain or Silage	5-10-10	1000-1200	8-16-16	600-800
	*4-12- 4	400- 600		
	*4-12- 8	400- 600		
Millet or Sudan	7- 7- 7	600- 800	10-10-10	400-500
Permanent Pasture	0-14-14[1]	500- 700	0-20-20	300-500
	5-10-10[2]	500- 600	8-16-16	300-500
Potatoes	5-10-10	2500	8-16-16	1600
	4-12-12	2400	5-15-15	2000
Vegetables and Home Gardens	5-10-10	2000	8-16-16	1250
	5- 8- 7	2000		
	5-10- 5	2000		
	*4-12- 4	1000		
Fruit Trees[3]	¼ lb. of common nitrogen carrier for each year of age of tree, up to 10 lbs., or ½ that amount of ammonium nitrate.			

* In addition to manure.

1. Safe application on soil suited for clover.
2. To be used where grazing can be controlled.
3. Boron in form of borax on fruit trees, ½ lb. per tree every three years.
4. 30-35 lbs. of borax per acre prior to seeding alfalfa is advisable.

A. The above recommendations are designed for a guide for use of commercial fertilizers only.

B. Use all the manure every year. IT IS A VALUABLE FERTILIZER.

C. Fortify manure with superphosphate at the rate of at least 1 lb. per animal per day.

D. Hen manure should be used at one-half the rate of cow manure.

E. Manure weighs approximately 45 lbs. per cubic foot.

CONFORMITY TO GUARANTEE

The chemical analyses reported in this bulletin were made by the methods adopted by the Association of Official Agricultural Chemists.

Number of brands analyzed	114
Equalling or exceeding all guarantees	64
Deficient in nitrogen only	17
Deficient in available phosphoric acid only	14
Deficient in potash only	10
Deficient in nitrogen and phosphoric acid	2
Deficient in nitrogen and potash	4
Deficient in phosphoric acid and potash	2
Deficient in nitrogen, phosphoric acid, and potash	1

Thirteen brands were guaranteed to contain magnesium oxide. None failed to meet the guarantee. In general, the overrun in plant food guarantees exceeds the deficiencies when all brands of a manufacturer are included.

Fertilizers are largely mixtures of highly purified chemicals. Segregation of these materials in the bag may be expected. To obtain a truly representative sample of a fertilizer mixture requires careful work. The chemist can accurately determine the nitrogen, phosphoric acid, and potash content of the sample sent to the laboratory. If this sample does not correctly represent the larger lot, the analytical work is of no use. The obligation of the fertilizer control program is to see that the manufacturer is supplying the guaranteed amount of plant food to the consumer. For this reason the sample must be drawn and analyzed very carefully so that injustice will not be done to either the consumer or manufacturer.

In the tabulation of the analyses in the following pages, deficiencies of one-half of one per cent or more are shown in red ink. The names of the manufacturers are arranged alphabetically. The brand names are listed alphabetically, or numerically by formula, under the manufacturer.

	Sample Drawn in	Nitrogen		Phosphoric Acid				Potash		Magnesium Oxide	
				Total		Available					
		Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found
Allied Chemical & Dye Corp. Hopewell, Va.											
Arcadia The American Nitrate of Soda	Walpole	16.00	16.13	.....	.....	.....	.....	.....	.....	.....	.....
A-N-L 20.5% Nitrogen	Concord	20.50	20.54	.....	.....	.....	.....	.....	.....	.....	.....
American Cyanamid Co. N. Y., N. Y.											
Aero-Cyanamid	Concord	20.60	20.70	.....	.....	.....	.....	.....	.....	.....	.....
Aeroprills Ammonium Nitrate Fertilizer 33.5%	Colebrook	33.50	33.60	.....	.....	.....	.....	.....	.....	.....	.....
American Agricultural Chemical Co. N. Weymouth, Mass.											
AA Quality Fertilizer 3-12-6	Nashua	3.00	3.01	.....	.....	12.00	**10.99**	6.00	6.01	.....	.....
Agrinite	Keene	8.25	8.42	.....	.....	.....	.....	.....	.....	.....	.....
Bone Meal	Keene	1.50	1.51	25.00	29.35	.....	.....	.....	.....	.....	.....
Agrico for Grains 3-12-6	Concord	3.00	3.02	.....	.....	12.00	**10.79**	6.00	6.16	.....	.....
Agrico for Corn 4-12-4	Nashua	4.00	3.70	.....	.....	12.00	**10.96**	4.00	4.40	.....	.....
Agrico for New England 5-8-7	Concord	5.00	5.06	.....	.....	8.00	8.11	7.00	7.01	.....	.....
Agrico for Potatoes 5-10-10	Concord	5.00	4.76	.....	.....	10.00	10.04	10.00	**9.68**	.....	.....
Agrico Country Club Fertilizer 6-10-4	Keene	6.00	5.69	.....	.....	10.00	9.76	4.00	4.24	.....	.....
Agrico for Lawns, Trees, Shrubs 6-10-4	Keene	6.00	6.01	.....	.....	10.00	9.81	4.00	3.76	.....	.....
Agrico for Top Dressing 7-7-7	Walpole	7.00	7.08	.....	.....	7.00	7.05	7.00	7.01	.....	.....
Agrico Phosphate & Potash 0-14-14	Exeter	.....	.....	.....	.....	14.00	14.14	14.00	14.80	.....	.....
Agrico 18% Normal Superphosphate	Concord	.....	.....	.....	.....	18.00	18.01	.....	.....	.....	.....
Apothecaries Hall Co. Waterbury, Connecticut											
Bone Meal	Manchester	3.70	3.81	20.00	**19.20**	.....	.....	.....	.....	.....	.....
Bone Meal	Manchester	2.25	3.87	22.00	26.15	.....	.....	.....	.....	.....	.....
Liberty Brand Fertilizer 4-12-4	Manchester	4.00	4.46	.....	.....	12.00	12.47	4.00	4.48	.....	.....
Liberty Brand Fertilizer 5-8-7	Manchester	5.00	5.03	.....	.....	8.00	9.30	7.00	7.99	.....	.....
Liberty Brand Fertilizer 5-10-10	Manchester	5.00	5.08	.....	.....	10.00	10.01	10.00	10.56	.....	.....

	Sample Drawn in	Nitrogen		Phosphoric Acid				Potash		Magnesium Oxide	
				Total		Available					
		Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found
Liberty Brand Fertilizer 5-10-10-1½	Manchester	5.00	5.08	.....	.....	10.00	11.25	10.00	10.48	1.50	3.55
Liberty Green Gro Fertilizer for Lawns, Trees, Flowers, Shrubs 6-7-4	Manchester	6.00	6.18	.....	.....	7.00	8.87	4.00	4.72	.....	.....
Liberty Brand Fertilizer 7-7-7	Manchester	7.00	7.04	.....	.....	7.00	7.78	7.00	7.44	.....	.....
Liberty Brand Fertilizer 8-16-16	Colebrook	8.00	8.15	.....	.....	16.00	17.04	16.00	16.24	.....	.....
Liberty Brand Fertilizer 0-14-14	Manchester	.....	.....	.....	.....	14.00	14.44	14.00	17.60	.....	.....
Liberty Domestic Sheep Manure	Manchester	1.00	1.33	.....	.....	0.50	0.99	1.00	3.44	.....	.....
Liberty Landscape and Golf Course Fertilizer 8-6-2	Manchester	8.00	8.72	.....	.....	6.00	6.27	2.00	3.20	.....	.....
Armour Fertilizer Works Carteret, N. J.											
Armour Big Crop Fertilizer 5-8-7	Nashua	5.00	4.68	.....	.....	8.00	8.60	7.00	**6.36**	.....	.....
Armour Big Crop Fertilizer 5-10-10-2	Nashua	5.00	5.30	.....	.....	10.00	10.63	10.00	**8.72**	2.00	2.59
Armour's Vertagreen 6-12-12	Concord	6.00	6.18	.....	.....	12.00	12.49	12.00	11.88	.....	.....
Armour's Big Crop Fertilizer 7-7-7	Concord	7.00	6.88	.....	.....	7.00	7.45	7.00	7.28	.....	.....
Buell Fertilizer Co. Exeter, N. H.											
Buell Peat-Poultry Manure	Exeter	3.00	3.14	3.00	**2.17**	.....	.....	1.50	1.76	.....	.....
Chilean Nitrate Sales Corp. New York 5, New York											
Chilean Nitrate of Soda Champion Brand	Concord	16.00	16.18	.....	.....	.....	.....	.....	.....	.....	.....
Consolidated Rendering Co. Boston, Mass.											
Sulphate of Ammonia	Concord	20.50	20.69	.....	.....	.....	.....	.....	.....	.....	.....
Corenco Sheep Manure	Conway	2.00	1.73	1.00	1.54	.....	.....	1.00	2.32	.....	.....
Corenco Poultry Manure 2-2-2	Manchester	2.00	2.62	2.00	4.19	.....	.....	2.00	2.32	.....	.....
Corenco Ground Bone	Concord	1.50	1.15	27.00	29.20	.....	.....	.....	.....	.....	.....
Corenco Spurz-On	Concord	3.50	3.76	3.50	3.60	.....	.....	1.50	1.92	.....	.....
Corenco Complete Manure 4-12-4	Lancaster	4.00	4.36	.....	.....	12.00	12.74	4.00	5.04	.....	.....
Corenco 5-8-7	Concord	5.00	5.01	.....	.....	8.00	8.61	7.00	7.36	.....	.....

Corenco Peerless Potato	Conway	5.00	5.01	.....	.....	10.00	10.08	10.00	10.24	.....	.....
Corenco 5-10-10 with Water Soluble Potash	Berlin	5.00	4.96	.....	.....	10.00	10.08	10.00	10.16	2.00	2.11
Corenco 7-7-7 Complete Fruit and Top Dressing	Concord	7.00	7.09	.....	.....	7.00	7.34	7.00	7.68	.....	.....
Corenco 8-6-4 Landscape Fertilizer	Concord	8.00	7.68	.....	.....	6.00	6.64	4.00	5.04	.....	.....
Corenco 8-12-16-2	Manchester	8.00	8.10	.....	.....	12.00	**11.45**	16.00	16.16	2.00	2.68
Corenco Two in One 8-16-16-2	Berlin	8.00	8.10	.....	.....	16.00	**14.24**	16.00	**14.12**	2.00	2.03
Corenco 0-14-14 Top Dresser	Concord	.....	.....	.....	.....	14.00	14.03	14.00	14.01	.....	.....
Corenco 19% Superphosphate	Berlin	.....	.....	.....	.....	19.00	19.44	.....	.....	.....	.....
Corenco Superphosphate 20%	Concord	.....	.....	.....	.....	20.00	20.07	.....	.....	.....	.....
Muriate of Potash 60%	Manchester	.....	.....	.....	.....	.....	.....	60.00	60.16	.....	.....
Davison Chemical Co. Baltimore, Md.											
Davco Granulated Fertilizer 4-12-4	Manchester	4.00	4.07	.....	.....	12.00	12.18	4.00	4.08	.....	.....
Davco Granulated Fertilizer 5-8-7	Concord	5.00	5.01	.....	.....	8.00	8.06	7.00	7.04	.....	.....
Davco Granulated Fertilizer 5-10-5	Manchester	5.00	5.20	.....	.....	10.00	9.82	5.00	5.52	.....	.....
Davco Granulated Fertilizer 5-10-10	Concord	5.00	5.55	.....	.....	10.00	10.24	10.00	9.76	.....	.....
Davco Granulated Fertilizer 7-7-7	Manchester	7.00	6.88	.....	.....	7.00	7.43	7.00	7.84	.....	.....
Davco Granulated Fertilizer 0-14-7	Manchester	.....	.....	.....	.....	14.00	14.60	7.00	8.72	.....	.....
Davco Granulated Fertilizer 0-14-14	Manchester	.....	.....	.....	.....	14.00	14.01	14.00	14.16	.....	.....
Davco Granulated Fertilizer 0-20-20	Lancaster	.....	.....	.....	.....	20.00	21.20	20.00	**19.15**	.....	.....
Davco Granulated Superphosphate 20%	Manchester	.....	.....	.....	.....	20.00	21.18	.....	.....	.....	.....
E. I. DuPont de Nemours Co. Belle, W. Va.											
DuPont Nu Green Fertilizer	Manchester	44.0	44.03	.....	.....	.....	.....	.....	.....	.....	.....
Eastern States Farmers' Exchange, Inc. W. Springfield, Massachusetts											
Eastern States 5-10-10	Concord	5.00	5.08	.....	.....	10.00	10.37	10.00	10.56	.....	.....
Eastern States 8-12-12 L.C.S.	Manchester	8.00	8.24	.....	.....	12.00	12.48	12.00	12.96	.....	.....
Eastern States 8-16-8	Manchester	8.00	8.30	.....	.....	16.00	**14.38**	8.00	8.88	.....	.....
Eastern States 8-16-16	Concord	8.00	8.14	.....	.....	16.00	16.13	16.00	16.72	.....	.....
Eastern States 10-10-10	Concord	10.00	10.06	.....	.....	10.00	10.02	10.00	10.64	.....	.....
Eastern States 0-20-20	Concord	.....	.....	.....	.....	20.00	19.76	20.00	20.16	.....	.....
Eastern States 20% Superphosphate Granulated	Manchester	.....	.....	.....	.....	20.00	20.84	.....	.....	.....	.....
Eastern States Muriate of Potash 60%	Manchester	.....	.....	.....	.....	.....	.....	60.00	61.12	.....	.....
Fox Point Chemical Co. Providence, R. I.											
Muriate of Potash	Walpole	.....	.....	.....	.....	.....	.....	60.00	**52.72**	.....	.....

	Sample Drawn in	Nitrogen		Phosphoric Acid				Potash		Magnesium Oxide	
				Total		Available					
		Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found
Old Fox 4-12-8	Exeter	4.00	3.88	.....	.....	12.00	**10.85**	8.00	7.76	.....	.....
Old Fox 4-12-16	Exeter	4.00	4.86	.....	.....	12.00	12.78	16.00	**15.36**	.....	.....
Old Fox 4-16-20	Exeter	4.00	4.38	.....	.....	16.00	16.01	20.00	20.40	.....	.....
Old Fox 5-8-7	Exeter	5.00	5.50	.....	.....	8.00	7.65	7.00	**6.48**	.....	.....
Old Fox 5-10-10-1	Walpole	5.00	5.01	.....	.....	10.00	10.01	10.00	10.96	1.00	1.27
Old Fox 7-7-7	Exeter	7.00	6.84	.....	.....	7.00	7.52	7.00	7.60	.....	.....
Old Fox 8-6-2	Exeter	8.00	7.61	.....	.....	6.00	7.24	2.00	3.20	.....	.....
Old Fox 8-16-16	Exeter	8.00	**7.45**	.....	.....	16.00	16.15	16.00	**15.24**	.....	.....
Old Fox 0-12-24	Walpole	.....	.....	.....	.....	12.00	12.19	24.00	25.52	.....	.....
Old Fox 0-20-20	Exeter	.....	.....	.....	.....	20.00	**15.95**	20.00	23.28	.....	.....
Old Fox 20% Superphosphate	Exeter	.....	.....	.....	.....	20.00	20.34	.....	.....	.....	.....
International Mineral & Chemical Co. Woburn, Mass.											
International Bone Meal	Nashua	2.47	3.25	23.00	23.32	.....	.....	.....	.....	.....	.....
International Fertilizer 4-12-16-1	Lancaster	4.00	4.05	.....	.....	12.00	12.19	16.00	15.88	1.00	1.22
International Fertilizer 5-8-7-1	Manchester	5.00	**4.44**	.....	.....	8.00	9.80	7.00	7.01	1.00	1.01
International Fertilis Plant Food 5-10-5	Lancaster	5.00	5.16	.....	.....	10.00	9.79	5.00	5.44	.....	.....
International Fertilizer 5-10-10-1	Manchester	5.00	5.54	.....	.....	10.00	**9.40**	10.00	10.40	1.00	1.25
International Potato 5-10-10-2	Manchester	5.00	4.85	.....	.....	10.00	10.59	10.00	10.08	2.00	3.12
International Fertilizer 6-12-12-2	Lancaster	6.00	5.74	.....	.....	12.00	12.38	12.00	12.32	2.00	2.34
International Fertilizer 7-7-7-1	Manchester	7.00	6.76	.....	.....	7.00	7.54	7.00	7.04	1.00	1.62
International Fertilizer 8-6-2	Lancaster	8.00	**7.01**	.....	.....	6.00	7.92	2.00	3.76	.....	.....
International Fertilizer 8-16-16	Manchester	8.00	7.57	.....	.....	16.00	16.69	16.00	16.24	.....	.....
International 10-10-10-1	Colebrook	10.00	**9.28**	.....	.....	10.00	11.83	10.00	**8.84**	1.00	1.17
International Fertilizer 0-14-14	Nashua	.....	.....	.....	.....	14.00	14.61	14.00	14.32	.....	.....
International 0-20-20	Colebrook	.....	.....	.....	.....	20.00	20.01	20.00	20.80	.....	.....
International 20% Superphosphate	Colebrook	.....	.....	.....	.....	20.00	20.53	.....	.....	.....	.....
International Muriate of Potash	Concord	.....	.....	.....	.....	.....	.....	60.00	59.84	.....	.....

Merrimack Farmers' Exchange, Inc. **Concord, N. H.**											
Merrimack Fertilizer 4-12-4	Concord	4.00	4.38	.....	.....	12.00	10.05	4.00	5.52	.....	.....
Merrimack Fertilizer 4-12-16	Concord	4.00	4.58	.....	.....	12.00	12.11	16.00	16.32	.....	.....
Merrimack Fertilizer 5-8-7	Concord	5.00	4.83	.....	.....	8.00	8.50	7.00	7.60	.....	.....
Merrimack Fertilizer 5-10-10	Concord	5.00	4.89	.....	.....	10.00	10.42	10.00	10.01	.....	.....
Merrimack Brand Fertilizer 7-7-7	Manchester	7.00	7.61	.....	.....	7.00	7.21	7.00	7.20	.....	.....
Harold L. Norwood **N. Reading, Mass.**											
Norwood Brand Sheep Manure	Concord	1.50	2.30	.....	.....	0.35	0.51	2.75	5.52	.....	.....
Rogers & Hubbard Co. **Portland, Conn.**											
Bone Meal	Keene	2.00	2.29	23.00	27.45	.....	.....	.....	.....	.....	.....
Gro Fast Cow Manure	Keene	2.00	2.01	1.00	0.85	.....	.....	1.00	2.08	.....	.....
Hubbard Vegetable Fertilizer 5-8-7	Keene	5.00	5.11	.....	.....	8.00	8.39	7.00	7.52	.....	.....
Hubbard General Crop Fertilizer 5-10-10	Nashua	5.00	5.21	.....	.....	10.00	9.45	10.00	10.48	.....	.....
Hubbard Top Dressing 7-7-7	Nashua	7.00	7.08	.....	.....	7.00	7.64	7.00	7.20	.....	.....
Hubbard Double Strength 8-16-16	Nashua	8.00	8.08	.....	.....	16.00	16.24	16.00	15.40	.....	.....
Hubbard 20% Superphosphate	Keene	.....	.....	.....	.....	20.00	21.05	.....	.....	.....	.....
Hubbard Muriate of Potash 60%	Nashua	.....	.....	.....	.....	.....	.....	60.00	62.08	.....	.....
Sagadahocs Fertilizer Works **Bowdoinham, Me.**											
Fasgrow 4-12-4	Rochester	4.00	4.25	.....	.....	12.00	12.01	4.00	4.80	.....	.....
Swift & Co. **Baltimore, Md.**											
Vigoro 5-10-5	Colebrook	5.00	4.82	.....	.....	10.00	10.03	5.00	5.12	.....	.....
Tennessee Corp. **Lockland, Ohio**											
Loma 5-10-5	Nashua	5.00	5.35	.....	.....	10.00	10.03	5.00	5.04	.....	.....
Walker-Gordon Lab. Co. **Plainsboro, N. J.**											
Bovung	Conway	2.00	1.27	1.00	1.42	.....	.....	1.00	2.16	.....	.....